

[54] DUAL DENSITY DISPLAY

[75] Inventor: **Raymond A. Hafner**, Mount Prospect, Ill.[73] Assignee: **Cummins-Allison Corporation**, Glenview, Ill.[22] Filed: **Feb. 26, 1974**[21] Appl. No.: **445,964**[52] U.S. Cl. ... **340/324 AD; 178/7.5 D; 178/7.5 SE; 315/367; 340/146.3 ED**[51] Int. Cl.² **G06F 3/14**[58] Field of Search **340/324 AD, 146.3 ED; 315/22, 26; 178/7.5 D, 7.5 SE**[56] **References Cited****UNITED STATES PATENTS**

3,271,738	9/1966	Kamentsky	340/146.3 ED
3,387,084	6/1968	Hine et al.	340/324 AD
3,439,986	4/1969	Moore	340/146.3 ED
3,471,743	10/1969	Olsson et al.	340/324 AD
3,624,632	11/1971	Opair	340/324 A
3,786,481	1/1974	Hartman	340/324 AD
3,792,613	2/1974	Couture	340/324 AD
3,812,285	5/1974	Miyata et al.	340/324 AD

Primary Examiner—David L. Trafton

Attorney, Agent, or Firm—Wolfe, Hubbard, Leydig, Voit & Osann, Ltd.

[57]

ABSTRACT

A display system using a CRT and capable of simultaneously displaying both a true video picture and matrix characters produced by a character generator. Such display is economically achieved by processing the matrix and video display signals in ways most compatible with each. A code responsive matrix display section includes a code word storage memory for storing the code words corresponding to the characters to be displayed, and a character generator responsive to the code words for producing the dot patterns of the matrix characters. A video display section responds to a digital signal which contains the actual video information for producing the dot pattern of the video picture. The CRT vertical and horizontal sweep rates are dynamically variable. A first rate, utilized with the matrix display section, produces individual dots which are sufficiently separated to generate readable matrix characters. A second rate, operational with the video display section, produces a denser dot pattern, making the individual dots in the video picture relatively imperceptible. In an illustrative application, the display system is adapted for use in a CRT key entry terminal for a re-entry document optical scanning system.

13 Claims, 4 Drawing Figures